

Train Control Standards Update

PTC RSAC

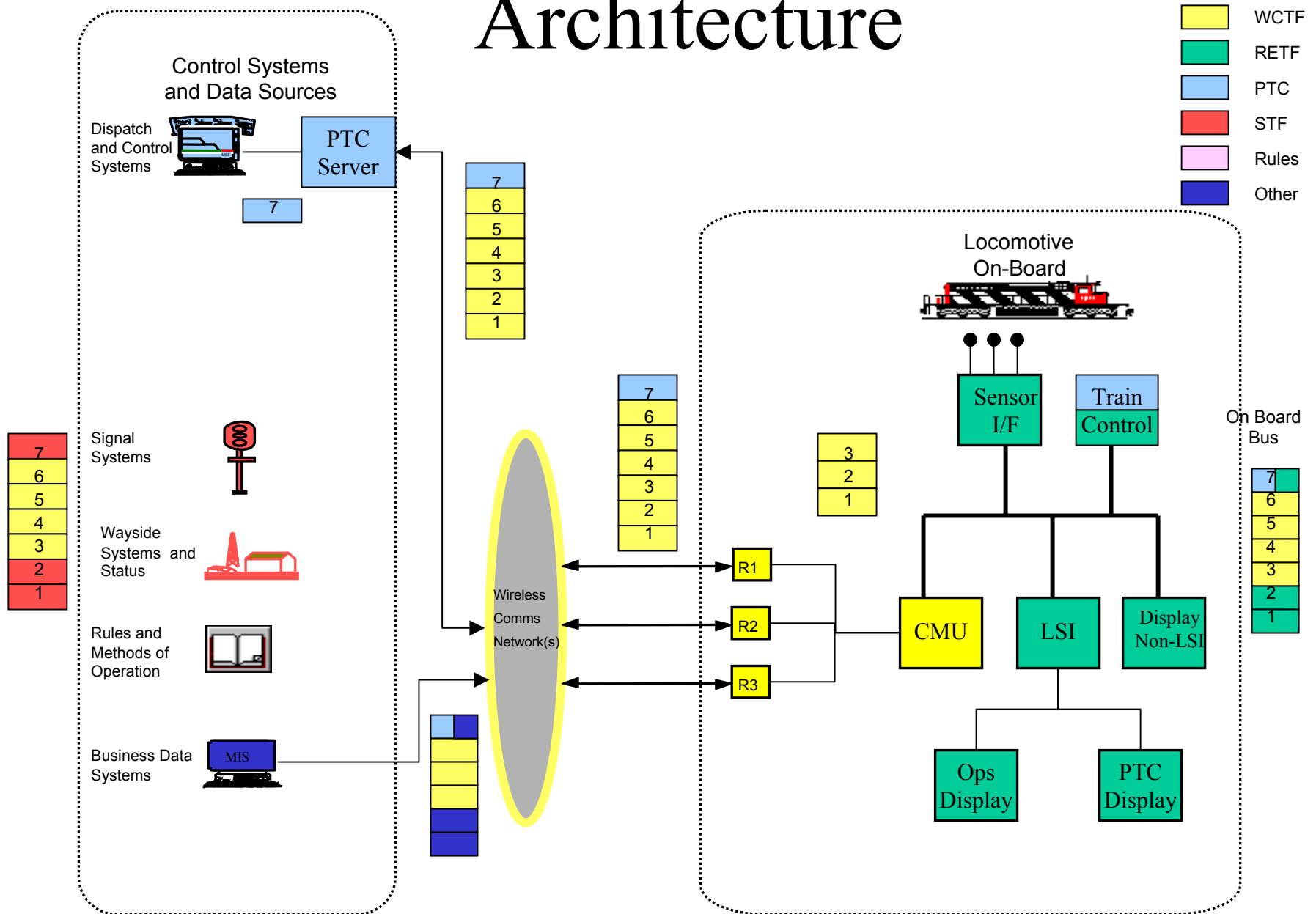
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Presentation

- Train Control Standards - architecture & standards scope
- Work completed to date
- Work to be done

Architecture



Train Control Standards

Technology	Data
<ul style="list-style-type: none"> • RF Communications <ul style="list-style-type: none"> • Protocols <ul style="list-style-type: none"> • Spec 200 - Layers 3-6 • Wide Area Technology <ul style="list-style-type: none"> • Spec 200 - Layers 1-3 • Others (APCO-P25) • HMI's <ul style="list-style-type: none"> • M-591 new version will be issued soon will propose effort next year to integrate with Train Control and distributed power • Locomotive Platform <ul style="list-style-type: none"> • Architecture <ul style="list-style-type: none"> • LSI (Modified) M590 • PTC onboard platform • Protocols <ul style="list-style-type: none"> • TCP/IP Ethernet 	<ul style="list-style-type: none"> • Data Dictionary - input <ul style="list-style-type: none"> • ATCS Spec 250 • ISM/EDI • Supplier Specs • HMI Requirements • Messages using onboard and IDOT messages as input
Management	Performance
<ul style="list-style-type: none"> • Configuration Management 	<ul style="list-style-type: none"> • Stimulus/Response • RMA <ul style="list-style-type: none"> • Industry Specs • Supplier Specs • Operational <ul style="list-style-type: none"> • Latency, Response Time <ul style="list-style-type: none"> • Industry Specs • Supplier Specs • Safety <ul style="list-style-type: none"> • RSAC - RSPP/PSP • ATCS Spec 140 • IEEE • Environmental new MSRP spec proposed

Work Completed

- Developed Data Dictionary and are continuing to modify with input from other standards work
- Developed standards for interoperable train control systems onboard the locomotive through the Eastern Project
- Communications Standards
 - Selected ATCS Specification 200 for upper layer RF protocols as the standard

More Work Completed

- Messages
 - Held several NAJPTC meetings to work on the Interface Requirements/Interface Design document which contains messages, data elements and “snake” diagrams for the IDOT PTC Project.
 - These items are a key input into the industry message specification to replace ATCS Specification 250

More Work Completed

- Formed a Railway Electronics Task Force to handle Configuration Management and development of AAR Electronic Standards (includes train control)
 - Initial “Section K” issue of the MSRP includes: EOT, AEI and Configuration Management
 - On the immediate docket are: M591 Operating Display, environmental, and ATCS Specification 200
 - Developed a new architecture for on-board systems

More Work Completed

- Train Control Standards
 - Developed draft of Industry Train Control Concept of Operations
- Provided supporting Data Bases
 - Addressing
 - Established databases at TTCI for:
 - ATCS railroad numbers, IP addresses for APCO-P25 (really the onboard communications gateway), end of train devices, APCO-P25 radios and manufacturer codes
 - Looking at new set of mobile IP addresses for onboard systems

Work to be Done

- Complete Onboard Communications Specification
- Next Generation Message Standards
 - Build on AAR cab electronics standards (LSI), Eastern PTC Project output, IDOT IRS/IDD output and use as input into new message standard
 - Have completed data dictionary - needs to be updated
 - Establish working group of industry & suppliers to complete work
- Develop Simulation tool set